



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

## SOME DOUBTFUL POINTS IN THE LIFE-HISTORY OF

### *Notophthalmus viridescens*.

Investigators who have worked on this animal now agree that it passes through three stages in its life-history.

1. An aquatic larval stage with external gills and broad tail, lasting from three to five months.

2. A land stage in which the tail is narrow, compressed but somewhat rounded, the color generally red and the habitat strictly terrestrial. The duration of this stage is usually placed at two or three years but in the light of some measurements which I have made on a large series I believe that four years would be more accurate.

3. An adult aquatic form of viridescent color and broad flat tail.

A few zoologists are still in doubt about the uniform occurrence of the land form. Jordan in his exhaustive paper on the habits and development of this animal says that none of the adults are found below a certain size. But he also says: "It is quite possible that certain individuals attain maturity without ever leaving the water."

I do not agree with the last statement for two reasons: First, when the larva loses its gills the tail becomes round, the newt swims with difficulty and is unfit for life in the water. If given the opportunity it will always crawl out of water and hide in moss or other shelter. Secondly, measurements of a series of 427 individuals show that Jordan's first statement is correct. All but five of these measured over 80 mm. in total length, and of these five the shortest was 77 mm.

Measurements of the land form show that it seldom grows much larger than the minimum size of the water form. Out of a series of 82 specimens eleven measure more than 80 mm., the longest two being 94 and 95 mm.

Lack of space prevents giving more data at the present time. In brief, the measurements show that the larvæ at the time of metamorphosis measure from 29 to 32 mm., the land form ranges from 32 to 95 mm., and the adult from 77 to 124 mm.

These figures fit in so well with the outline of the life-history given above that comment is hardly necessary.

The second question is one of habits and habitat.

Why is it that the land form is found in hundreds in certain localities at certain seasons, while in other places where the water form is abundant it is extremely rare?

I can go to seven pools or streams within a mile of my home in central Maine and find the water form or the larva at the right time of year but in all my life I have never seen more than five or six specimens of the land form from that locality. The fact that no intermediate sizes are found in the water leaves me convinced that all the individuals pass through the land stage, but where are they?

In some regions, usually hilly, the land form is very abundant, coming out in large numbers after showers. Is it possible that the nature of the country changes the habits of the animal? Such an explanation does not seem very plausible to me but I can think of no better.

Perhaps this question is not more puzzling than the scarcity of the adults of *Ambystoma punctatum* in spite of the abundance of their eggs and larvæ in the spring months. But *Ambystoma* always hides except for a little while during the breeding season, while *Notophthalmus* sometimes appears plentifully.

Possibly some of the readers of *Copeia* who live where the land form is abundant could enlighten me on this point.

PHILIP H. POPE,  
*Pittsburgh, Pa.*